

WATER-POWERS

features of Canada is its system of river reservoirs in the form of lakes, and this is strikingly exemplified in the Great Lakes, which form the southern boundary of the province of Ontario and have their outlet in the St. Lawrence river. Nearly all the rivers tributary to the St. Lawrence system repeat the same system of reservoirs on a smaller scale. North of the Height of Land also the rivers nearly all have their lake reservoirs, and the rivers of the Western Plain store their waters in this way. Some of the mountain rivers of British Columbia have the same characteristic, and illustrations can be found in the Maritime Provinces. Thus there are almost innumerable lakes scattered all over Canada. These bodies of water have a moderating influence upon the climate.

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A complete enumeration of the water-powers of Canada has never been made, but the Dominion Water-Power Branch of the Department of the Interior and the Dominion Conservation Commission have issued a number of valuable reports which, while not all-embracing, give an approximate estimate of the water-power resources. A great deal of valuable information is also obtainable from the annual reports of the Hydro-Electric Power Commission of the Province of Ontario, and from the reports of the International Joint Commission which represents the interests of Canada and the United States in the waterways and water-powers along the frontier.

In many cases the estimates are very exact, but in some cases they are only approximate. Care has been taken in estimating to take into consideration only the minimum flow of water. In many cases the minimum flow of water is for a very brief period of the year, and for nearly the whole year much greater power is available; so that a statement of the minimum power underestimates the real power possibilities; but it is considered best in this article to accept minimum calculations rather than risk exaggeration. In some cases the storage conditions may be greatly improved and the discharge controlled during the period of high water. For instance, the power possibilities of the slope between the Height of Land and James bay, in the province of Ontario, are estimated at 400,000 H.-P., but it is calculated that under discharge control over 2,000,000 H.-P could be developed on the James bay slope. In the statement of the power possibilities of the Winnipeg river system the minimum power available under natural conditions of water-flow is estimated to be 280,300 H.-P in Manitoba, and 203,838 H.-P in Ontario, a total of 484,138 H.-P at the lowest stage of the water-flow; but it is calculated that if the discharge of water were controlled by dams at Lake of the Woods, Rainy lake, lake Seul and other lakes along this river system this could be increased to nearly 1,000,000 H.-P. The power estimates for the Ottawa river are based on present conditions. If the Ottawa and Georgian Bay Canal project is carried out the power conditions will be completely changed, and many new water-powers will be created.